

REMARKS

Favorable reconsideration and withdrawal of the rejections set forth in the above-mentioned Official Action in view of the foregoing amendments and the following remarks are respectfully requested.

Specification

The specification has been amended to place it in better form. It is respectfully submitted that no new matter has been added.

Claims Status

Claims 1 through 27 remain pending in the application. Claims 1, 2, 4 through 8, 10 through 12, and 14 through 27 have been amended to even more succinctly define the invention and/or to improve their form. Again, it is respectfully submitted that no new matter has been added. Claims 1, 7, 14, 18, 22, 24, 25, and 27 are the only independent claims pending in the application.

Art Rejections

Claims 1 through 5, 14 through 17, 22, 23, 25, and 26 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,381,419 (Kinoshita, et al.) in view of U.S. Patent No. 6,226,025 (Kim).

Claims 7 through 13 and 18 through 21 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Kinoshita, et al. in view of Japanese Patent Document No. 3426148 (Imado, et al.).

Claims 6, 24, and 27 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Kinoshita, et al. as applied to Claims 1, 22, and 25 and in view of Kim and further in view of Imado, et al.

The rationale underlying each of the foregoing art rejections is succinctly set forth in the Official Action.

Response to Art Rejections

The rejections are respectfully traversed.

Initially, it is noted that Kinoshita, et al. serves as the primary citation for all of the rejections.

Amended Claim 1 is directed to an image forming apparatus having an image carrier, and a developing unit for forming an image by supplying a developer onto the image carrier. The apparatus includes a consumption amount detecting unit configured to detect an amount of consumed developer (S4 through S6 in Fig. 3) in a case where an amount of image forming using the developing unit has reached a predetermined amount (S5: 100 or more); a control unit (101) configured to transfer an image formed on the image carrier onto a transfer material, or to perform an adjustment operation (S7) of adhering the developer to the image carrier so as to consume the developer without transferring an image on the transfer material (page 26, lines 12 through 17); and a setting unit (page 26, lines 18 through 22) configured to set an amount of the developer consumed in the adjustment operation on the basis of the amount of consumed developer detected by the consumption amount detecting unit, wherein the control unit performs the adjustment operation based on the amount of the developer set by the setting unit.

Independent Claim 14 is a method claim formulated on the basis of apparatus Claim 1.

As to Claims 1 and 14, the Examiner recognizes Kinoshita, et al. does not disclose or suggest a control feature for changing an amount of the developer to be adhered to the

image carrier in accordance with the amount of the consumed developer detected by a consumption amount detecting unit. Accordingly, the Examiner relies on Kim for allegedly teaching this claimed feature, which is absent from Kinoshita, et al.

Independent Claim 22 recites a developing unit detachable to an image forming apparatus that includes a vessel containing a developer and a storage medium for storing information. The information is used to control an adjustment without transferring an image onto a transfer material.

As to independent Claim 22, the Examiner recognizes Kinoshita, et al. does not disclose or suggest the control unit of the image forming apparatus controlling to adjust an amount of the developer in the developing unit. Again, the Examiner relies on Kim for teaching a claimed feature, which is absent from Kinoshita, et al.

Amended independent Claim 25 recites a storage medium provided in a developing unit usable with an image forming apparatus. The developing unit includes a vessel containing a developer. The medium includes a storage area for storing information concerning to a characteristic of the developer. The information is used to control an adjustment operation in which the image forming apparatus consumes the developer without transferring an image onto a transfer material mounted to the developing unit that recited in Claim 1.

As to independent Claim 25, the Examiner recognizes Kinoshita, et al. does not disclose or suggest a control unit of the image forming apparatus performing an adjustment control of an amount of the developer in the developing unit. Yet again, the Examiner relies on Kim for allegedly teaching a claimed feature, which is absent from Kinoshita, et al.

As to Claims 2 through 5, 15 through 17, 23, and 26, the Examiner recognizes that Kinoshita, et al. does not further teach consumption amount detection unit, developer characteristics and threshold, developer adhered on the image carrier under various conditions.

As to Claims 2 through 5, 15 through 17, 23, and 26, the Examiner recognizes Kinoshita, et al. does not disclose or suggest a consumption amount detection unit, developer characteristics and a threshold, developer adhered on the image carrier under various conditions. Again the Examiner relies on Kim for allegedly disclosing a claimed feature, which is absent from Kinoshita, et al.

Amended independent Claim 7 is directed to an image forming apparatus having an image carrier, and a developing unit for forming an image by supplying a developer onto the image carrier, the apparatus comprising: a consumption amount detecting unit configured to detect an amount of consumed developer in a case where an amount of image forming using the developing unit has reached a predetermined amount; a control unit configured to transfer an image formed on the image carrier onto a transfer material, or to perform an adjustment operation (S17 in Fig. 6) of driving the developing unit without supplying the developer to the image carrier; and a setting unit (S16 in Fig. 6) configured to set a driving time period of the developing unit in the adjustment operation on the basis of the amount of consumed developer detected by said consumption amount detecting unit, wherein said control unit performs the adjustment operation based on the driving time period of the developing unit set by said setting unit.

Amended independent Claim 18 is a method claim formulated on the basis of apparatus Claim 7.

As to independent Claims 7 and 18, Kinoshita, et al. does not teach the control unit changing a driving time of the developing unit in accordance with the amount of the consumed developer detected by the consumption amount detecting unit. Again, the Examiner relies on Kim for allegedly disclosing a claimed feature, which is absent from Kinoshita, et al.

Amended independent Claim 24 recites a developing unit detachable from an image forming apparatus that includes a vessel containing a developer and a storage medium for storing information. The information is to control an adjustment operation in which the image forming apparatus drives the developing unit without supplying the developer to an image carrier.

Amended independent Claim 27 recites a storage medium provided in a developing unit usable with an image forming apparatus. The developing unit having a vessel containing a developer. The medium that includes a storage area for storing information concerning to a characteristic of the developer, wherein the information is to control an adjustment operation in which the image forming apparatus drives the developing unit without supplying the developer to an image carrier.

As to Claims 24 and 27, the Examiner recognizes Kinoshita, et al. and Kim do not teach control unit under different conditions changing driving time of the developing unit. Accordingly, the Examiner further relies on Imado, et al. for allegedly teaching this feature.

It is respectfully submitted that in all instances, Kinoshita, et al. does not teach or suggest the claimed control features recited in the independent claims. The Examiner relies on either Kim or Kim and Imado, et al. for allegedly disclosing the claimed features, which are absent from Kinoshita, et al.

It is respectfully submitted that the combination rejections are not well founded. The Examiner has provided a *rationalization* for combining the teachings of the cited art based on the benefits of doing so. Specifically, the Examiner generally asserts that it is proper to combine the teachings of the cited art to achieve a benefit, i.e., to provide enough developer as needed to improve print quality. But such a benefit and a manner of achieving such a benefit is suggested by Applicants' disclosure not the prior art *per se*. A combination rejection is proper only when there is some suggestion or motivation in the cited art *per se* to cause one having ordinary skill in the art to combine the teachings of the cited art by modifying the teachings of one prior art reference with the teachings of one or more other prior art benefit. There is nothing in the cited art which supports the position that it can be combined in the manner suggested. Even if the art could be so combined, the mere fact that the art can be combined is not sufficient if there is no suggestions in the art that such a combination is desirable. Merely suggesting that a benefit can be achieved by combining the cited art does not establish a proper *prima facie* case for an obviousness rejection. For example, see ACS Hospital Systems, Inc. v. Montefiore Hospital, 221 U.S.P.Q. 929, 933 (Fed. Cir. 1984).

In view of the foregoing, it is respectfully submitted that independent Claims 1, 7, 14, 18, 22, and 25 are allowable over the cited art.

Dependent Claims


Claims 2, 6, 8 through 13, 15 through 17, 19 through 21, 23, 24, 26, and 27 depend either directly or indirectly from one of Claims 1, 7, 14, 18, 22, and 25 and are allowable by virtue of their dependency and in their own right for further defining Applicants' invention. Individual consideration of the dependent claims is respectfully requested.

Closing Comments

It is respectfully submitted that the pending claims are allowable over the art of record and that the application is in condition for allowance. Favorable reconsideration and early passage to issue of the present application are earnestly solicited.

Applicants' undersigned attorney may be reached in our Washington, D.C. office by telephone at (202) 530-1010. All correspondence should continue to be directed to our New York office at the address shown below.

Respectfully submitted,



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